

REMARKS

Claims 1 and 15 are independent and stand rejected under 35 U.S.C. § 102 as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over Chua et al. '683 ("Chua"). This rejection is respectfully traversed for the following reasons.

Claim 1 recites in pertinent part, "a density of the impurity element in the semiconductor *decreases* with the distance from the interface between the semiconductor and the transparent electrode" and claim 15 similarly recites in pertinent part, "a density of the impurity element in the semiconductor *decreases* with the distance from the interface between the semiconductor and the passivation film" (emphasis added). According to one aspect of the present invention, it can be made possible to decrease the resistivity at the interface between the semiconductor and the transparent electrode and at the vicinity of the interface. As a result, it can be made possible to reduce the contact resistance of the semiconductor with respect to the transparent electrode.

Turning to Chua, as pointed out by the Examiner, impurities (Mg) doped *in the alleged semiconductor* are diffused *into* the alleged transparent electrode rather than in the opposite direction. Accordingly, the density of the impurity element in the alleged semiconductor *increases* with the distance from the interface between the semiconductor and transparent electrode, so that the density of the impurity element in the semiconductor is higher than that in the transparent electrode (*see* attached exhibit illustrating structural difference between Chua and present invention). Indeed, in Chua, impurities are not purposely introduced into the transparent electrode. In this regard, Chua fails to disclose or suggest diffusing impurities introduced in the transparent electrode into the semiconductor which is in contact with the transparent electrode. Similarly, Chua also does not disclose introducing impurities in the alleged passivation film *to be*

subsequently diffused into the semiconductor, so that Chua does not disclose claim 15 for reasons similar to those discussed above.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that Chua does not anticipate claims 1 and 15, nor any claim dependent thereon.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1 and 15 are patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 102 be withdrawn.

CONCLUSION

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's

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amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Ramyar M. Farid

Registration No. 46,692

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 RMF:MaM
Facsimile: 202.756.8087
Date: April 10, 2006

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Attachment

Fig. A (Present Application)

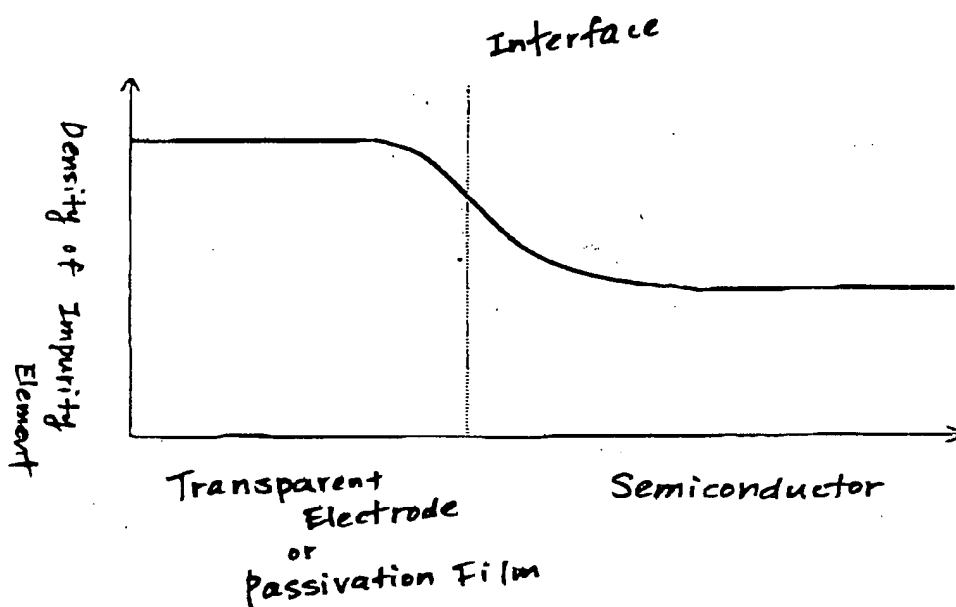


Fig. B (Chua)

